

ATTACHMENT

Status of claims and support for claim changes February 10, 2010

【 5. Description for Claim 10】

In the approach of claim 10 a formation of wavelength selectivity with low insertion losses is used in cooperation with a thin gain zone that leads to SLM operation. Therefore, the laser arrangement clearly consists of three limitations in claim 10:

- (1) a laser gain region is very thin;
- (2) the thin gain region is located adjacent to or in contact with an end laser cavity mirror; and
- (3) a formation of wavelength selectivity with low insertion losses is placed within a laser cavity.

The function of the limitation (1) and (2) in the laser arrangement is to create a circumstance to promote SLM operation. In such a circumstance, all possible longitudinal modes have about an equal chance to extract the available gain. One lucky mode that begins to oscillate first wins the “mode-competition” and deprives the others of the gain needed to oscillate, thereby encouraging or enforcing single-longitudinal-mode (SLM) operation.

On the other hand, the effect caused by a thin gain region in contact with an end mirror is equivalent to that caused by short cavity configurations, in which those potential oscillating longitudinal modes are separated substantially. In such a case, the required resolving-power of a frequency-selective form will be largely relaxed and it becomes possible to use a formation with low insertion losses in realizing single-mode operation.

【 6. Reason for Patent】

None of the searched prior arts alone or combination discloses the claimed method imitations presented in independent claim 1 or claim 10, respectively, having the combined recited steps for forming a laser cavity to obtain stable single longitudinal mode operation in order to solve the well-known so-called “green problem”. In particular, nobody in the prior art has ever suggested and considered the use of a formation of wavelength selectivity with low insertion losses in cooperation with a thin gain zone, or the use of a spectral filter in cooperation with a beam expander to reduce the insertion losses, leading to stable single longitudinal mode operation.